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F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			GRAY, LINDA L	
			ART UNIT	PAPER NUMBER
			1734	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,436

Applicant(s)

CHOO ET AL.

Examiner

Linda L. Gray

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1-22-04, 12-27-04, 1-27-05, and 8-1-05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/108,045.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Detailed Action

Election/Restriction

1. Applicant's election with traverse of **claims 12-18 and 21-23** (Group I) in the reply filed on 8-1-05 is acknowledged. The traversal is on the grounds that due to similarities between the claims of Group I and Group II (**claims 10-20**), simultaneous examination will not present an undue burden. Although the inventions in the claims of Groups I and II are able to support separate patents and are distinct, applicant's comment is found to be persuasive upon further review of the pending claims, and **claims 12-18, 19-20, and 21-23** have been examined.

Claim Rejections - 35 USC 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 21-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which pertains, or with which it is most nearly connected, to make and/or use the invention.**

Claim 21, the specification is not enabling for the claimed means: **(a)** means for dispensing spacers and **(b)** means for joining because these means are not supported by corresponding structures in the specification. One skilled in the art would not know how to make and use the invention without a description of elements to perform the functions. Although the description of the system in the specification includes block diagrams to describe these functions, which is not always nonenabling, the intended means for dispensing spacers and means for joining are not necessarily conventional and the intended structures cannot be determined without an undue amount of experimentation.

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- 4.** The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 5. Claims 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 21, use of "means for dispensing spacers" and "means for joining" render claim 21 indefinite because corresponding structures are not described in the specification in specific terms and one skilled in the art would not be able to identify the structures of the means to perform the intended functions.

Claim 21 recites the limitation "the liquid crystal display cell regions" in lines 7-8. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

- 6.** The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

- 7. Claims 12-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,710,843 to Choo et al. in view of Takahara et al. (US 5,426,522).**

Claim 12, claim 1 of Choo et al. teach an in-line system for fabricating a liquid crystal display including the following:

- a)** a spacer dispensing unit for dispensing spacers onto at least one of first and second substrates with a plurality of liquid crystal display cell regions,
- b)** a sealer coating unit for coating a sealer onto the first substrate,
- c)** a liquid crystal injection unit for dropping liquid crystal onto the first substrate coater with a sealer,
- d)** an assembly unit for assembling the first substrate with the second substrate, and
- e)** a sealer hardening unit for hardening the sealer interposed between the first and second substrate to thereby join the first and the second substrate.

Claim 12, claims 1-6 to Choo et al. do not teach that the sealer hardening unit seals by irradiating ultraviolet rays.

Takahara et al. teach bonding substrates 31 and 32 together as part of a process to make a liquid crystal display. First sealant 11 is applied to one of the substrates 31 or 32, the substrates 31 and 32 are joined, and then the resin is actively hardened by irradiating ultraviolet rays (c 2, L 39-61).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided in claim 12 that the sealer hardening unit seals by irradiating ultraviolet rays as is conventional in the art (see Takahara et al.) in order to harden the sealer such that the first and second substrates are sealed completely.

Claim 13, claim 1 to Choo et al. teach a substrate cutting unit for cutting the first and the second substrates along cutting lines through illuminating a laser beam along the cutting lines such that the first and the second substrates are severed into the liquid crystal display cell regions.

Claim 14, claims 1-2 to Choo et al. teach that the substrate cutting unit includes a laser for pre-heating the first and second substrates along the cutting lines, a laser transporter for fixing or transporting the laser, and a cooling agent sprayer unit for cooling the pre-heated first and second substrates along the cutting lines.

Claim 15, claim 3 to Choo et al. teach that the substrate cutting unit includes a substrate transporter for fixing, rotating, or transporting the first and second substrates.

Claim 16, claim 4 to Choo et al. teach that the cooling agent spraying unit is mounted on the laser transporter.

Claim 17, claim 5 to Choo et al. teach that the spacer dispenser unit, the sealer coating unit, the liquid crystal injection unit, the assembly unit, the sealer hardening unit, and the substrate cutting unit are designed to be in-line.

Claim 18, claim 6 to Choo et al. teach first and second alignment units for aligning the first and second substrates with each other before the assembling, and a heat treatment unit for heat-treating the liquid crystal.

8. Claims 19-23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7-11 of U.S. Patent No. 6,710,843 to Choo et al.

Claim 19, claim 7 to Choo et al. fully anticipates claim 19 because claim 7 to Choo et al. teach a method of fabricating a liquid crystal display including the following steps:

- a) dispensing spacers onto at least one of first and second substrates with a plurality of liquid crystal display cell regions,
- b) coating a sealer onto the first substrate,
- c) dropping a liquid crystal onto the first substrate,
- d) assembling the first and second substrates to join with each other,

e) hardening the sealer interposed between the first and the second substrates, and

f) cutting the first and the second substrates along cutting lines using a laser such that the first and the second substrates are severed into a plurality of liquid crystal display cell regions.

Claim 20, claims 7-8 to Choo et al. fully anticipate claim 20 because claims 7-8 to Choo et al. teach that the method includes pre-heating the first and the second substrates along the cutting lines through illuminating a laser beam along the cutting lines, cooling the first and the second substrates along the cutting lines through spraying a cooling agent along the cutting lines to thereby form a crack, and propagating the crack along the cutting lines.

Claim 21, claim 9 to Choo et al. fully anticipates claim 21 because claim 9 to Choo et al. teach an in-line system for fabricating a liquid crystal display including the following:

a) means for dispensing spacers between first and second substrates,
b) means for joining the first and the second substrates to form a gap,
c) means for injecting liquid crystal onto the gap, and
d) means for cutting the first and second substrates along cutting lines such that the first and the second substrates are severed into the liquid crystal display cell regions.

Claim 22, claims 9-10 to Choo et al. fully anticipate claim 22 because claims 9-10 to Choo et al. teach that the means for cutting includes a laser for pre-heating the first and the second substrates along the cutting lines, a laser transporter for fixing or transporting the laser, and a cooling agent spraying unit for cooling the pre-heated first and second substrates along the cutting lines.

Claim 23, claim 11 to Choo et al. fully anticipates claim 23 because claim 11 to Choo et al. teach that the means for joining includes a sealer coating unit and a sealer

hardening unit, the sealing unit for coating at least one of the first and second substrates with a sealer and the sealer hardening unit for hardening the sealer.

Claim Rejections - 35 USC 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shu et al. (JP2001-356313) in view of Takahara et al.

Claim 12, Shu et al. teach an in-line system for fabricating a liquid crystal display including the following:

- a)** a spacer dispensing unit 2000 for dispensing spacers onto at least one of first and second substrates with a plurality of liquid crystal display cell regions;
- b)** a sealer coating unit 3000 for coating a sealer onto the first substrate;
- c)** a liquid crystal injection unit 5000 for dropping liquid crystal onto the first substrate coated with the sealer;
- d)** an assembly unit 8000 for assembling the first substrate with the second substrate; and

(e) a sealer hardening unit 4000 for hardening the sealer interposed between the first and the second substrates by irradiating rays to thereby join the first and the second substrates (English abstract; drawings).

Claim 12, in Shu et al. do not teach that the rays are ultraviolet rays.

Takahara et al. teach bonding substrates 31 and 32 together as part of a process to make a liquid crystal display. First sealant 11 is applied to one of the substrates 31 or 32, the substrates 31 and 32 are joined, and then the resin is actively hardened by irradiating ultraviolet rays (c 2, L 39-61).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided in Shu et al. that the rays are ultraviolet rays as is conventional in the art as demonstrated by Takahara et al. to ensure proper hardening of the sealer.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

11. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shu et al. (JP2001-356313) in view of Takahara et al. as applied to claim 12 above, and further in view of Hoekstra (US 6,420,678).

Claim 13, Shu et al. modified suggest in Figure 1 separating the first and second substrates along lines a and b such that the first and second glass substrates are separated into the liquid crystal display regions. Shu et al. do not specifically recite an illuminated-laser-beam-cutting-unit.

Hoekstra teach an illuminated-laser-beam-cutting-unit 26 for cutting glass substrates along cutting lines (c 1, L 25-32; c 6, L 37-51). Hoekstra teaches using a laser

to achieve faster cutting, allow complete separation, and eliminate secondary operations (c 2, L 46-52).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided in Shu et al. modified, specifically, the illuminated-laser-beam-cutting-unit of Hoekstra because Hoekstra teaches in the same art of cutting glass that using the illuminated-laser-beam-cutting-unit achieves faster cutting, allows for complete separation, and eliminates secondary operations.

Claim 14, in Shu et al. modified in view of Hoekstra the cutting unit includes that the laser pre-heats the first and second substrates along the cutting lines, a laser transporter for fixing or transporting the laser, and a cooling agent spraying unit for cooling the pre-heated first and second substrates along the cutting line. Specifically, see Hoekstra which teaches that the laser heats, a laser transporter for fixing or transporting the laser 42, and a cooling agent spraying unit 44 for cooling the pre-heated first and second substrates along the cutting lines (c 6, L 36, to c 7, L 4; c 4, L 53-59).

Claim 15, *Shu et al. modified do not teach a substrate transporter for fixing, rotating, or transporting the first and second substrates.*

Hoekstra teaches that the illuminated-laser-beam-cutting-unit 26 includes a substrate transporter for fixing, rotating, or transporting the glass to be cut in that the substrate can be moved as necessary for cutting and also for loading and unloading of the substrate (c 4, L 50-67).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided in Shu et al. that the cutting unit includes a substrate transporter for fixing, rotating, or transporting the first and second substrates because Hoekstra teaches in the art of cutting glass that such allows for moving of the substrate as necessary for cutting and also for loading and unloading of the substrate.

Claim 16, in Shu et al. modified in view of Hoekstra the cooling agent spraying unit is mounted on the laser transporter. Specifically, see Hoekstra which teach the cooling agent spraying unit 44 mounted on the laser transporter (c 6, L 36, to c 7, L 4; c 4, L 53-59).

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shu et al. in view of Takahara et al. and Hoekstra as applied to claims 13-16 above, and further in view of Byun et al. (US 6,606,524).

Claim 17, Shu et al. modified teach that the spacer dispensing unit 2000, the sealer coating unit 3000, the liquid crystal injection unit 5000, the assembly unit 8000, and the sealer hardening unit 4000 are designed to be in-line (see drawings as well).

***Claim 17**, Shu et al. modified do not teach that the substrate cutting unit is designed to be in the same in-line.*

Byun et al. teach an in-line system for fabricating a liquid crystal display (c 1, L 8-13) where, as shown in Figure 1, substrates are loaded into the in-line system at the loader, operated upon at various sub-apparatuses, and then the final product is unloaded from the system at the unloader (c 1, L 14-28). The in-line system demonstrates that the liquid crystal display can be manufactured continuously.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided in Shu et al. modified that the substrate cutting unit is designed to be in the same in-line in that Byun et al. teach in the same art of making liquid crystal displays that a system which provides for a complete in-line system and allows the liquid crystal display to be manufactured continuously.

13. Claims 19-20 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Shu et al. in view of Hoekstra.

Claim 19, Shu et al. teach a method of fabricating a liquid crystal display including the following steps:

- a)** dispensing spacers onto at least one of first and second substrates with a plurality of liquid crystal display cell regions;
- b)** coating a sealer onto the first substrate;
- c)** dropping a liquid crystal onto the first substrate;
- d)** assembling the first and second substrates to join with each other;
- e)** hardening the sealer interposed between the first and the second substrates; and
- f)** separating the first and the second substrate along lines such that the first and the second substrates are severed into a plurality of liquid crystal display cell regions.

(English abstract; drawings).

In Shu et al. the sealer will harden such that the display is ready for use.

Claim 19, Shu et al. do not specifically recite using a laser.

In view Hoekstra discussed above, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided in Shu et al., specifically, the illuminated-laser-beam-cutting-unit of Hoekstra because Hoekstra teaches in the same art of cutting glass that using the illuminated-laser-beam-cutting-unit achieves faster cutting, allows for complete separation, and eliminates secondary operations.

Claim 20, in Shu et al. in view of Hoekstra the cutting step includes pre-heating the first and second substrates along the cutting lines through illuminating the laser beam along the cutting lines, cooling the first and second substrates along the cutting lines through spraying a cooling agent along the cutting lines to thereby form a crack, and propagating the crack along the cutting lines. Specifically, see Hoekstra which teaches pre-heating along the cutting lines through illuminating the laser beam 42 along the cutting lines, cooling along the cutting lines through spraying a cooling agent along the cutting lines to thereby form a crack, and propagating the crack along the cutting lines (c 4, L 32-49).

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

14. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable Kato et al. (US 5,828,435) in view of Byun et al. and Shu et al. with Hoekstra.

Claim 21, Kato et al. teach fabricating a liquid crystal display including dispensing spacers between first and second substrates 2 and 2' (c 2, L 23-26), joining the first and second substrates 2 and 2' to form a gap (c 2, L 27-34), and injecting liquid crystal onto the gap (c 2, L 35-40).

Claim 21, Kato et al. do not teach that fabrication above uses an in-line system with a separate means for the spacer dispensing, joining, and injecting.

Byun et al. teach fabricating a liquid crystal display including an in-line system with separate operation units. Specifically, Byun et al. teach an in-line system for fabricating a liquid crystal display (c 1, L 8-13) where, as shown in Figure 1, substrates are loaded into the in-line system at the loader, operated upon at various sub-apparatuses, and then the final product is unloaded from the system at the unloader (c 1, L 14-28). The in-line system demonstrates that the liquid crystal display can be manufactured continuously.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided in Kato et al. that fabrication uses an in-line system with a separate means for the spacer dispensing, joining, and injecting because Byun et al. teach in the same art of making liquid crystal displays that an in-line system with separate units for each fabrication operation allows for the liquid crystal display to be manufactured continuously. It is noted that the specification of the pending application does not include a corresponding structure to limit the means plus function limitations for the means for dispensing spacers and means for joining where the structure of Kato et al. in view of Shu et al. and Hoekstra is considered to be equivalent to the means claimed since the structure of the prior art performs the claimed functions.

Claim 21, Kato et al. modified do not teach a means for cutting the first and second substrates 2 and 2' along cutting lines such that the first and second substrates 2 and 2' are severed into liquid crystal display regions in that Kato et al. teach one liquid crystal display cell region for each pair of substrates 2 and 2'.

In view of Shu et al., it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided in Kato et al. a plurality of liquid crystal display regions on substrates 2 and 2' with a means for separating the first and second substrates 2 and 2' along cutting lines such that the first and second substrates 2 and 2' are severed into these liquid crystal display regions, as demonstrated by Shu et al., instead of making each liquid crystal display regions one at a time. With respect to the separating means being a cutting means, in view of Hoekstra discussed above, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided that the separating means be that as shown in Hoekstra because

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Hoekstra teaches in the same art of cutting glass that using the illuminated-laser-beam-cutting-unit achieves faster cutting, allows for complete separation, and eliminates secondary operations.

Claim 22, in Kato et al., modified, the cutting unit includes a laser for preheating the first and second substrates 2 and 2' along the cutting lines, a laser transporter for fixing and transporting the laser, and a cooling agent spraying unit for cooling the preheated first and second substrates along the cutting lines. Specifically, see Hoekstra which teaches that the laser preheats, a laser transporter for fixing or transporting the laser 42, and a cooling agent supplying unit 44 for cooling the preheated first and second substrates 2 and 2' along the cutting lines (c 6, L 36, to c 7, L 4; c 4, L 53-59).

Claim 23, in Kato et al. modified the means for joining includes a sealer coating unit for coating at least on of the first and second substrates 2 and 2' with a sealer 5 where the sealer coating unit includes a syringe (c 1, L 45, to c 2, L 22) and sealer hardening unit for hardening the sealer 5 (c 2, L 23-34).

Comments

15. Although **claim 18** is rejected under the judicially created doctrine of obviousness-type double patenting, the prior art of record to the other references (Shu et al., Takahara et al., Hoekstra, Byun et al., and Kato et al.) do not teach or suggest that in the primary reference to Shu et al., there should be provided a heat treatment unit for heat-treating the liquid crystal in that the liquid crystal is ready for use after injection and does not require further treatment to align the liquid crystal (see pending specification, pg 10, last paragraph). Also, it is noted that assembly unit 8000 acts as an aligning unit for the first and second substrates for bonding the two together in correct position.


Conclusion


16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Gray whose telephone number is (571) 272-1228. The examiner can normally be reached Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla, can be reached at (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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llg 
October 31, 2005


LINDA GRAY
PRIMARY EXAMINER